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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,996

07/05/2006

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EXAMINER

BEHRINGER, LUTHER G

ART UNIT

PAPER NUMBER

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,996	Applicant(s) YESHA, ITSHAK BEN	
	Examiner LUTHER G. BEHRINGER	Art Unit 3766	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/23/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This office action is in response to the communication received on 04/23/2008 concerning application no. 10/596996 filed on 07/05/2006.
2. Applicant's arguments with respect to claims 1 – 21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claim 1, 3, 4, 9, 10, 11, 13, 14, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fraden (US 4,509,527)** in view of **Miller (US 5,796,340)**.

Regarding **claim(s) 1 and 11**, Fraden discloses a system and method for non-invasive monitoring of subject heartbeat rate, said system and method comprised of: collecting vertical pressure signals comprising vertical pressure measurements along time received from at least two sensors located beneath the subject's body; generating at least one horizontal signal by subtracting at least one said vertical pressure signal from another vertical pressure signal (Col. 5 Line 63 – Col. 6, Line 3); but fails to disclose analyzing the at least one horizontal signal for identifying and detecting heartbeat rate of said subject.

However, Miller teaches analyzing the at least one horizontal signal for identifying and detecting heartbeat rate of said subject (Col. 5, Lines 8 – 10).

6. Since the marketplace reflects the reality that applying modern, more compact electronics to older electronic devices is commonplace, it would have been obvious to one of ordinary skill in the art of electrical medicinal therapy at the time of the invention to update the device of Fraden with the modern electronics that are commonly available and understood in the art as shown in Miller in order to gain the commonly understood benefits of such adaptation, such as increased reliability, reduced size, simplified operation and reduced cost.

With regard to **claim(s) 3 and 13**, Fraden in view of Miller discloses the step of identifying the respiration rate (Miller: Column 3, 23 – 29).

Regarding **claim(s) 4 and 14**, Fraden in view of Miller inherently discloses a system and method further comprising the step of calculating a sum signal comprising the sum of at least two vertical pressure signals and filtering and analyzing the

calculated sum signal in combination with the horizontal signal for identifying and detecting the heartbeat rate and respiration rate (Column 5, Lines 26 – 30).

With regard to **claim(s) 9 and 18**, Fraden in view of Miller discloses at least one sensor is located beneath the lower part of the subject's body and at least one sensor is located beneath the upper part of the subject's body (Fraden: Col. 3, Line 65 – Col. 4, Line 2).

Regarding **claim(s) 10 and 20**, Fraden in view of Miller discloses wherein the horizontal signal represents the horizontal movements of the subject and the analyzing includes detection of blood circulation (Column 3, Lines 23 – 29).

7. Claim(s) 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fraden (US 4,509,527)** in view of **Miller (US 5,796,340)** in view of **Sackner et al. (US 2002/0032386)**.

Regarding **claim(s) 2 and 12**, Fraden in view of Miller fails to disclose the step of filtering the horizontal signals for reducing background noise and respiratory artifact and other body movements in accordance with predefined signal frequency band values.

However, Sackner et al. teaches the step of filtering the horizontal signals for reducing background noise and respiratory artifact and other body movements in accordance with predefined signal frequency band values (Page 12, Paragraph [0114]).

8. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Fraden in view of Miller with the step of reducing background noise and respiratory artifact as taught by Sackner et al. since it is

well known in the art that doing so would increase the ease and reliability of the interpretation of the data delivered by Fraden in view of Millers invention.

9. Claim(s) 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Fraden (US 4,509,527)** in view of **Miller (US 5,796,340)** in view of **Cornish et al. (US 2006/0247543)**.

Regarding **claim 6**, Fraden in view of Miller fails to disclose the step of calibration for calculating the pre-defined filter signal frequency band values, wherein calibration is based on the FFT algorithm.

However, Cornish et al. teaches comprising the step of calibration for calculating the pre-defined filter signal frequency band values, wherein calibration is based on the FFT algorithm (Paragraphs [0092] and [0093]).

10. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Fraden in view of Miller with the teachings of Cornish et al. since it is well known in the art that doing so increases the reliability of the invention as disclosed by Fraden in view of Miller.

11. Claim(s) 5, 7, 8, 15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fraden (US 4,509,527)** in view of **Miller (US 5,796,340)** in view of **Porges (US 4,510,944)**.

With regard to **claim(s) 5 and 15**, Fraden in view of Miller fails to disclose the step of selecting the horizontal signal having the largest integral value of all horizontal signals, wherein the identification and detection of the heartbeat rate is based on said selected horizontal signal.

However, Porges teaches the step of selecting the horizontal signal having the largest integral value of all horizontal signals, wherein the identification and detection of the heartbeat rate is based on said selected horizontal signal (Col. 7, Lines 29 – 40).

12. A person of ordinary skill in the art, upon reading the reference, would have recognized the desirability of providing a peak detector to aid in determining a heart rate. Thus, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Fraden in view of Miller to include a peak detector as taught by Porges, since doing so would aid in the detection of a patients heart rate.

Regarding **claim(s) 7 and 17**, Fraden in view of Miller fails to disclose wherein the filtering is achieved by a high pass filter, wherein the cut off frequency is twice as a pre-defined heart rate.

However, Porges teaches wherein the filtering is achieved by a high pass filter (Column 1, Lines 57 – 61), wherein the cut off frequency is twice a pre-defined heart rate (Column 13, Lines 5 – 15).

13. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Fraden in view of Miller with the teachings of Porges since it is well known in the art that doing so increases the reliability of the invention as disclosed by Fraden in view of Miller.

14. Claim(s) 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fraden (US 4,509,527)** in view of **Miller (US 5,796,340)** in view of **Sackner et al. (US 2002/0032386)** in view of **Porges (US 4,510,944)**.

Regarding **claim(s) 8 and 19**, Fraden in view of Miller in view of Sackner fails to disclose wherein the analyzing includes identifying peak values of the filtered signal.

However, Porges teaches wherein the analyzing includes identifying peak values of the filtered signal (Column 8, Lines 37 – 41).

15. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Fraden in view of Miller in view of Sackner with the teachings of Porges since it is well known in the art that doing so would aid in the reliability of a diagnosis of a patient utilizing the invention as disclosed by Fraden in view of Miller in view of Sackner.

16. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Fraden (US 4,509,527)** in view of **Miller (US 5,796,340)** in view of **Sackner et al. (US 2002/0032386)** in view of **Cornish et al. (US 2006/0247543)**.

Regarding **claim 16**, Fraden in view of Miller in view of Sackner fails to disclose a calibration module for calculating the pre-defined signal frequency band values, wherein calibration is based on the FFT algorithm.

However, Cornish et al. teaches comprising the step of calibration for calculating the pre-defined filter signal frequency band values, wherein calibration is based on the FFT algorithm (Paragraphs [0092] and [0093]).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Fraden in view of Miller in view of Sackner with the teachings of Cornish et al. since it is well known in the art that doing so

increases the reliability of the invention as disclosed by Fraden in view of Miller in view of Sackner.

17. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Fraden (US 4,509,527)** in view of **Miller (US 5,796,340)** in view of **Bridger et al. (US 6,491,647)**.

Regarding **claim 21**, Fraden in view of Miller fails to disclose wherein the sensors are integrated within a single rigid housing.

However, Bridger et al. teaches wherein the sensors are integrated within a single rigid housing (Column 15, Lines 39 – 43).

18. It would have been obvious to a person having ordinary skill in the art at the time of the invention to use the sensors integrated within a single rigid housing as taught by Bridger et al. to modify the invention as disclosed by Fraden in view of Miller. Using the known technique of a rigid housing multi sensor package to provide uniform packaging and prevent device modification of the invention as disclosed by Fraden in view of Miller would have been obvious to one of ordinary skill.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Vosburgh et al (US 2005/0096557); Hirsh (US 2003/0083582)**.

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUTHER G. BEHRINGER whose telephone number is (571)270-3868. The examiner can normally be reached on Mon - Thurs 8:00 - 5:30; 2nd Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on (571) 272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3766

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carl H. Layno/
Supervisory Patent Examiner, Art Unit 3766

/Luther G Behringer/
Examiner, Art Unit 3766